

# Pentz-Smith Morgan Valley Diversion Reconstruction

Project ID: 3558

Status: Current

Fiscal Year: 2017

Submitted By: N/A

Total Acres: 1

Project Manager: Paul Burnett

PM Agency: Trout Unlimited

PM Office: Utah Chapter

Lead: Trout Unlimited

WRI Region: Northern

## Description:

Reconstruct a mainstem irrigation diversion on the Weber River near the City of Morgan, to achieve fish passage and vertically stabilize the river channel in proximity to a sewer line crossing under the Weber River.

## Location:

This project is located approximately 1 mile north (downstream) of the city of Morgan.

## PROJECT NEED

### Need For Project:

In 2011, a long duration high water event in the Weber River caused damage to a broad array of infrastructure. One major area of concern within the upper watershed was a sewer line crossing under the Weber River just to the north of the City of Morgan. This sewer line was partially exposed, and engineers from Morgan County suggested that the proximity of the irrigation diversion known as the Pentz-Smith Diversion played a contributing role to the channel instability. For years water users have been moving their headgate further upstream as the river channel has degraded (downcut) due to a wide variety of factors, including continued urbanization and floodplain loss immediately upstream in the town of Morgan.

After the 2011 floods, the City of Morgan asked the water users to move their irrigation diversion away from the sewer line crossing in an effort to provide a buffer between the two pieces of infrastructure. This would have resulted in a large channel spanning diversion structure that would have impounded the river, fragmented river habitat and destabilized the river channel laterally. Through engagement with the city and the water users, UDWR and TU staff have been able to conceptually develop a diversion structure that would be more suitable for this riverine environment and allow the water users to divert their water and ensure long term fish passage by creating a stable irrigation diversion.

### Objectives:

Maintain fish passage by providing design and construction assistance to the water users in the Pentz-Smith Irrigation Company.

### Threats / Risks:

A basinwide barrier assessment completed by TU and partners in the Weber River in 2013 indicated that habitat within the Weber River basin is highly fragmented by the presence of almost 400 complete and partial barriers. Habitat fragmentation threatens the Bonneville cutthroat trout and bluehead sucker by limiting the populations of these fish into smaller reaches of stream which do not contain the array of habitat features needed to ensure that their populations will be stable over the long term.

The original project as proposed not only had the potential to block fish passage as described above, but also has the potential to leave the sewer pipeline at continued risk of being exposed and damaged by river dynamics.

### Relation To Management Plan:

Bonneville cutthroat trout conservation strategy

Three-Species conservation strategy

Weber River Watershed plan

### Fire / Fuels:

Not Applicable to this Project

### Water Quality/Quantity:

This project addresses a major acute water quality challenge in the Weber River. As observed during the 2011 high water event, high water exposed the pipeline under the river. If the exposed pipeline had ruptured, then it would have had the potential of spilling uncontrolled raw sewage into the Weber River, directly upstream of the Bonneville cutthroat trout and Bluehead Sucker strongholds.

This project, as proposed, is intended to provide protection to the pipeline and prevent a headcut from exposing it in the future through the placement of the irrigation diversion structure in close proximity to the sewer line crossing.

#### Compliance:

NEPA will be addressed both through our project through HUD and through the USFWS as part of their grant process. We expect this project to be covered under a categorical exclusion for modifying existing structures.

Archaeological clearances and Section 7 consultation will be completed within the Stream Alteration processes. We will work with the DNR archaeologist.

#### Methods:

We are currently at 30% design on this project. We have retained RiverRestoration.Org to provide the final design and expect this to be completed during the Summer of 2016. The design phase will include hydraulic modeling and sediment management at the headgate. It will likely involve several iterations of review with the city.

Once we achieve a complete design, we will begin the stream alteration permitting process.

We expect to hire an experience outside contractor to complete the construction work. The general plan is to construct a channel-spanning rock structure that provides a consistent water level for the water users to take their water. The rock structure will provide the necessary roughness and refuge areas for fish to be able to migrate upstream past it with ease. We will reinstall a headgate and other controlling works to allow for sediment management to prevent their irrigation canal from clogging with sediment.

#### Monitoring:

The predominant monitoring activities at this site will include effectiveness monitoring to ensure that the diversion structure is operating as intended. Because fish populations in the Weber River are difficult to accurately sample, fish population monitoring will necessarily be included in existing UDWR stream sampling schedules. The primary metrics that we will focus on include the presence of the target species, specifically Bluehead Sucker and Bonneville cutthroat trout.

Nevertheless, these populations are affected by barriers and habitat outside of the project area, all of which interact synergistically to degrade aquatic habitat within the Weber River.

#### Partners:

Pentz-Smith Irrigation Company  
U.S. Fish and Wildlife Service  
Utah Division of Wildlife Resources  
Morgan City

#### Future Management:

This project is complimentary to Morgan City's effort to upgrade their sewer treatment plant, which is located adjacent to the project area. We expect this diversion structure to provide long-term river stability at this specific location. This project will also develop credibility among the aquatic community in the Morgan area, which we hope will catalyze other projects within the city limits of Morgan.

#### Domestic Livestock Benefit:

A majority of the water users on the Pentz-Smith Diversion are livestock producers and the water grows hay that provides winter forage for cattle. This project will ensure the long term sustainability of irrigation water use for the diversion company and the water users by reducing the maintenance burden.

BUDGET		WRI/DWR	Other	Budget Total	In-Kind Total	Grand Total
		\$82,500.00	\$247,500.00	\$330,000.00	\$0.00	\$330,000.00
Item	Description	WRI	Other	In-Kind	Year	
Contractual Services	Diversion Construction	\$45,000.0	\$120,000.	\$0.00	2017	
Contractual Services	Project Management	\$7,500.00	\$52,500.0	\$0.00	2017	
Contractual Services	Design Funding	\$25,000.0	\$60,000.0	\$0.00	2017	
NEPA		\$5,000.00	\$15,000.0	\$0.00	2017	

FUNDING	WRI/DWR	Other	Funding Total	In-Kind Total	Grand Total
	\$82,500.00	\$247,500.00	\$330,000.00	\$0.00	\$330,000.00

Source	Phase	Description	Amount	Other	In-Kind	Year
USFWS			\$0.00	\$9,500.00	\$0.00	2016
USFWS Fish Passage			\$0.00	\$60,000.0	\$0.00	2017
NRCS			\$0.00	\$178,000.	\$0.00	2017
Habitat Council Account			\$50,000.0	\$0.00	\$0.00	2017

Allocation	Percent of Total
Big Game	0%
Upland Game	0%
Waterfowl	0%
Sport Fish	100%
Nongame Fish	0%
Nongame Wildlife	0%
Blue Ribbon (Restricted)	\$32,500.0 \$0.00 \$0.00 2017

EXPENSE	WRI/DWR	Other	Expense Total	In-Kind Total	Grand Total
	\$0.00	\$0.00	\$0.00	\$0.00	\$0.00

Source	Phase	Description	Amount	Other	In-Kind	Year
USFWS		N/A	\$0.00	\$0.00	\$0.00	
USFWS Fish Passage		N/A	\$0.00	\$0.00	\$0.00	
NRCS		N/A	\$0.00	\$0.00	\$0.00	
Habitat Council Account		N/A	\$0.00	\$0.00	\$0.00	

Allocation	Percent of Total
Big Game	0%
Upland Game	0%
Waterfowl	0%
Sport Fish	100%
Nongame Fish	0%
Nongame Wildlife	0%
Blue Ribbon (Restricted)	N/A \$0.00 \$0.00 \$0.00

SPECIES

Species	"N" Rank	HIG/F Rank
Bluehead Sucker	N4	N/A

Threat	Impact
Channel Downcutting (indirect, unintentional)	Low
Presence of Dams	High
Presence of Diversions	Very High
Mountain Whitefish	1
Threat	Impact

Species	"N" Rank	HIG/F Rank
Threat		Impact
Not Listed		NA
Bonneville Cutthroat Trout	N4	1
Threat		Impact
Channelization / Bank Alteration (direct, intentional)		High
Presence of Dams		High
Presence of Diversions		High
Brown Trout		2
Threat		Impact
No Threat		NA

## HABITATS

### Habitat

Riverine

Threat	Impact
Presence of Dams	High
Presence of Diversions	Very High

## PROJECT COMMENTS

Comment      02/08/2016      Type: Financial      Commenter    Alan Clark

HUD grant application was not successful. How do you plan to proceed without this funding source?

Comment      02/08/2016      Type: Financial      Commenter    Paul Burnett

Our plan is to try to secure an NRCS EQIP project in their upcoming round of projects, which will be this fall. This fall, we also expect to receive a fish passage grant through the USFWS to supplement some of the funding changes. I will modify the budget to reflect these changes.

## COMPLETION

Start Date:

End Date:

FY Implemented:

2017

FY Completed:

Final Methods:

N/A

Project Narrative:

N/A

Future Management:

N/A

# Map Features

ID	Feature Category	Action	Treatment/Type
5016	Aquatic/Riparian Treatment	Stream Corridor/Channel	Vanes (vortex rock weir/cross